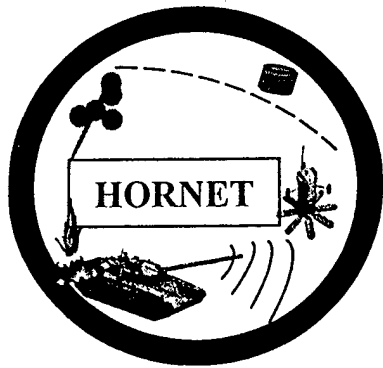


HORNET WIDE AREA MUNITION

***AN ESSENTIAL BUILDING BLOCK FOR ACHIEVING
UNMANNED TERRAIN DOMINATION
IN ARMY XXI AND BEYOND!***

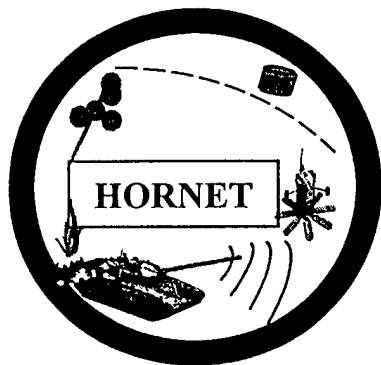
J. J. STAMBONI

TEXTRON Systems



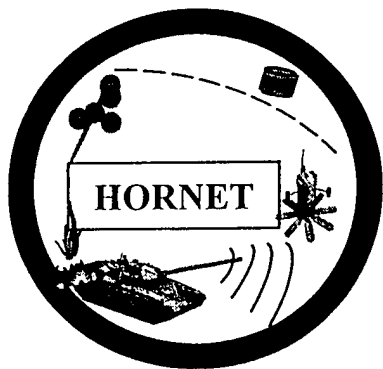
HORNET WIDE AREA MUNITION

- **Emerging Requirements for Army XXI and Army After Next**
- **Hornet Concept of Operation**
- **Equipment Description**
- **Program Status**
- **How Hornet Supports Army XXI and Army After Next**



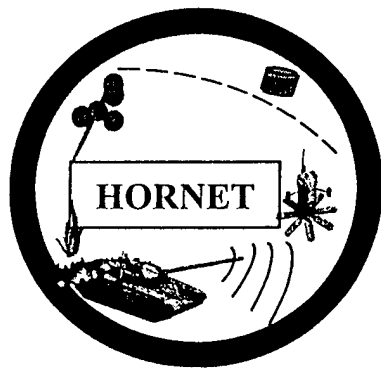
ARMY'S RECOGNIZED NEED FOR UNMANNED TERRAIN DOMINANCE

Today 1998-99	Force XXI 2005-10	Army After Next 2020-25
Integrated Product Team	Integrated Concept Team	Integrated Idea Team
WAM Hornet	Unmanned Terrain Domination	Fires
Autonomous Hornet	Hand-Emplaced Raptor	Remote Deployed Dynamic Barrier
COEA	Div AWE	AAN WarGame



AAN FIRES “DESIGN PRINCIPLES”

- **Minimum Logistic Burden**
- **Maximum Range**
- **Minimum Response Time**
- **Precision Engagement**
- **Multi-functional Platforms and Munitions**
- **Mix of Organic and Reach-out Assets**
- **Full Spectrum of Effects (Lethal to Non-lethal)**
- **Minimum Collateral Damage**
- **Survivability (Mix Stealth, Mobility, Unmanned Platforms)**
- **Balance Man-in-the-loop Requirements**
- **Effective Recon-Intel-Surveillance-Tgt -Acq Fusion**
- **Utility at Operational and Tactical Levels of War, While Enabling Global Early Entry Operations**
- **Meet Unique Needs of Vertical Battlespace and Ingress / Egress Routes**
- **Supports Operations in Complex Terrain**



PRIMARY BUILDING BLOCKS IN HORNET EVOLUTION

BASIC HORNET

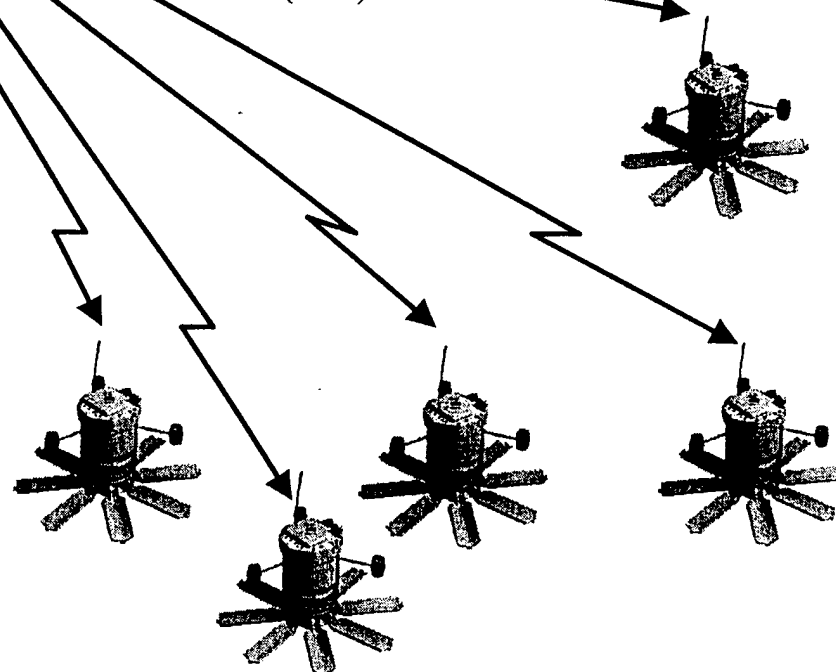
- Hand Emplaced
- Remote Arm / Self-Destruct
- Manual Arm / Self Destruct
- Reset SD Time
- Defeats Tracked Vehicles

**In Low Rate Production
(First Deliveries 1QGFY99)**

**Remote Control
Unit (RCU)
M71**

**HORNET
MUNITION**

~2Km (LOS)



TEXTRON Systems

WAM TARGET ENGAGEMENT SEQUENCE

TARGET DETECTED, CLASSIFIED, TRACKED



TARGET POSITION PREDICTED, LAUNCHER AIMED IN AZIMUTH



LAUNCHER TILTS, SUBLET LAUNCHED ALONG LOW TRAJECTORY.
TARGET DETECTED, EFP WARHEAD FIRED



51 0649

TEXTRON Systems

WAM TARGET ENGAGEMENT SEQUENCE

TARGET DETECTED, CLASSIFIED, TRACKED



TARGET POSITION PREDICTED, LAUNCHER AIMED IN AZIMUTH



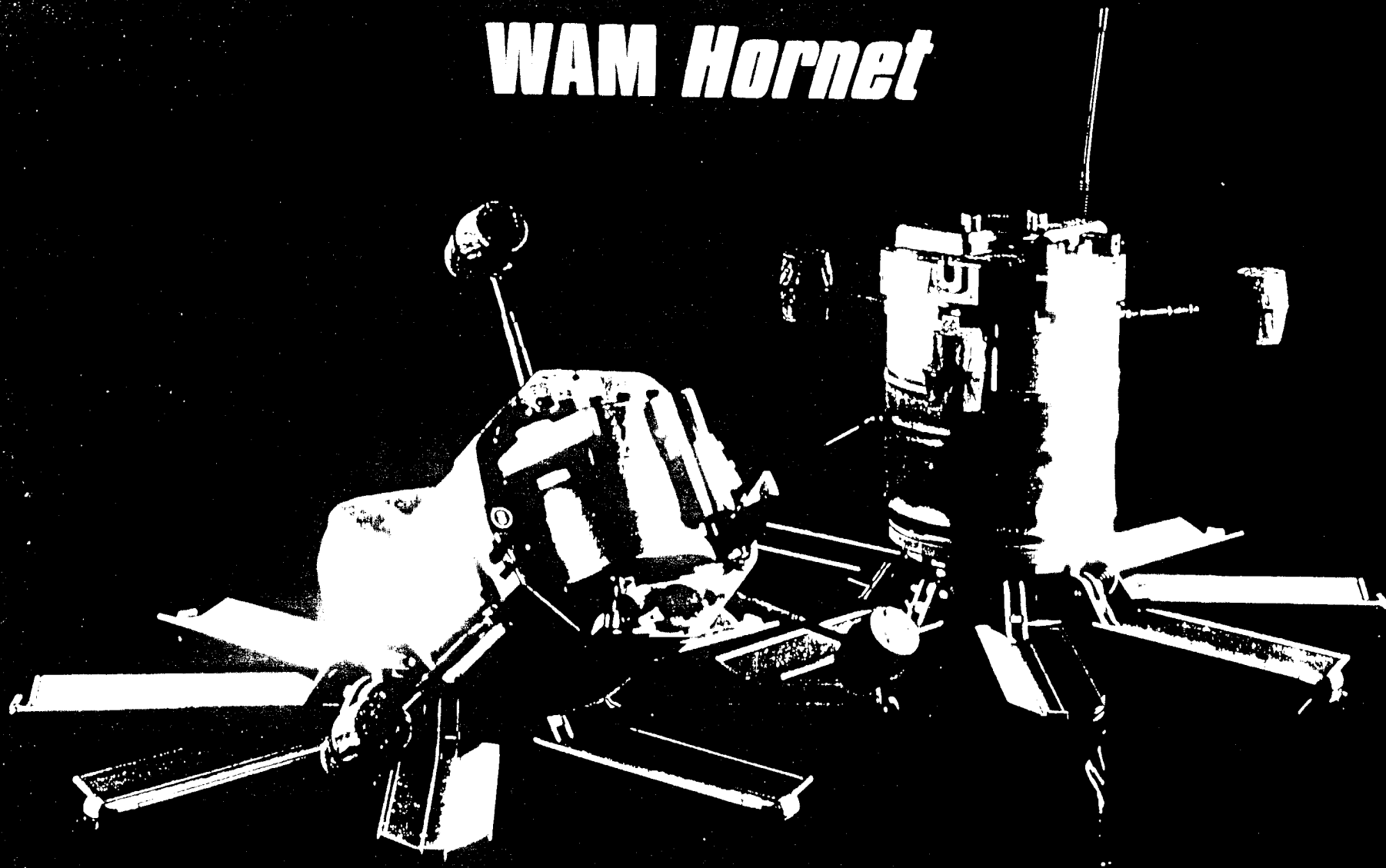
LAUNCHER TILTS, SUBLET LAUNCHED ALONG LOW TRAJECTORY.
TARGET DETECTED, EFP WARHEAD FIRED



51-0649

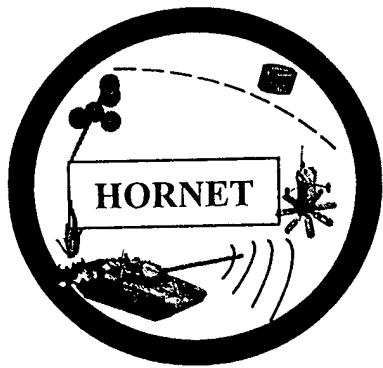
TEXTRON Systems

WAM Hornet



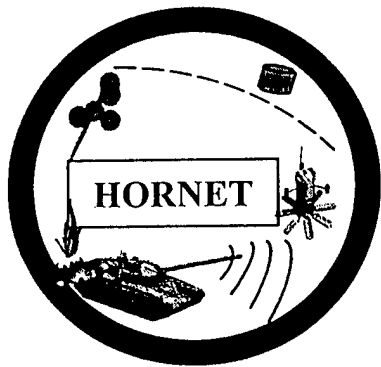
TEXTRON

Systems



BASIC HORNET MUNITION TECHNICAL DESCRIPTION

- **35 Lb Weapon - Hand Or Truck Emplaced**
- **Modified MOPMS Radio Receiver**
- **Self Righting, Self Activating Launcher**
- **Passive Acoustic/Seismic Ground Sensor**
- **Two-Color IR Sublet Sensor**
- **Tantalum Explosively Formed Penetrator Warhead**



HORNET UTILITY IMPROVES AS SYSTEM EVOLVES

HORNET VERSION

**OPERATIONAL
UTILITY**

**BASIC
HORNET**

- Efficient Defensive Operations
- Overwatch of State Obstacles (Banders)
- Approach Route Interdiction (Camille)
- Area Denial (X of X's)
- Economy of Force

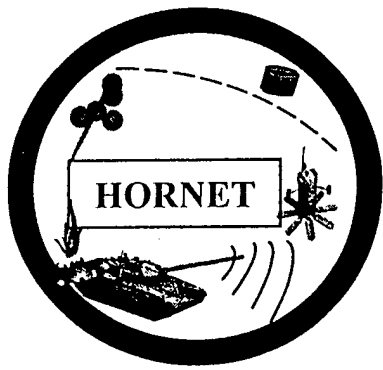
IMPROVED HORNET

FUTURE HORNET

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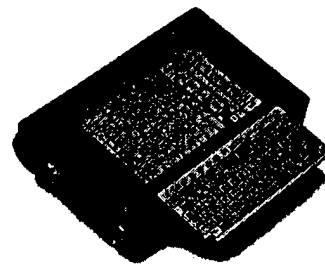
TEXTRON Systems

506



PRIMARY BUILDING BLOCKS IN HORNET EVOLUTION

IMPROVED
HORNET



CONTROL
STATION
(HTU)

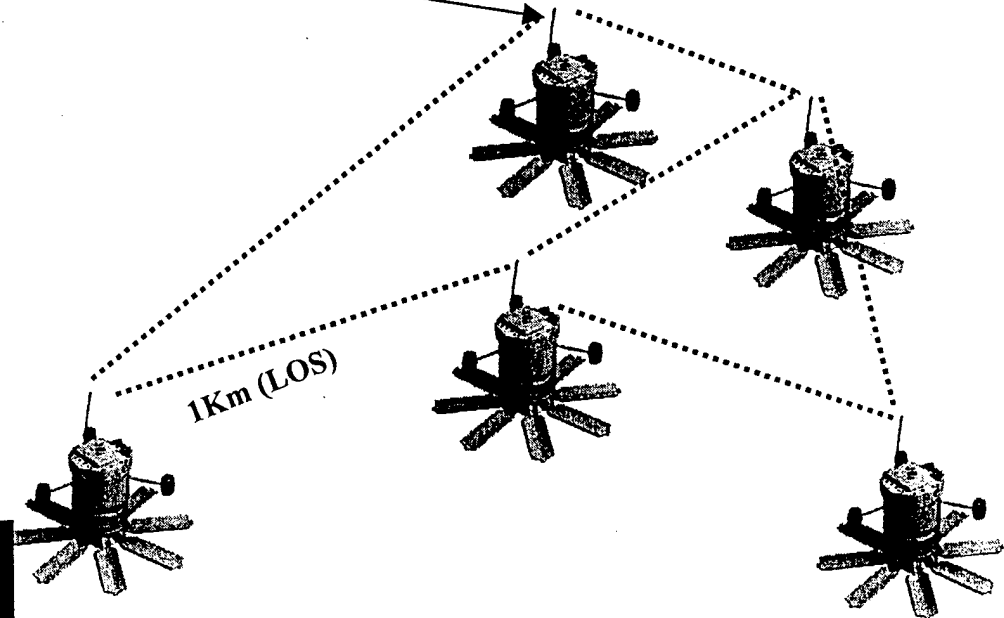
IMPROVED HORNET
MUNITION

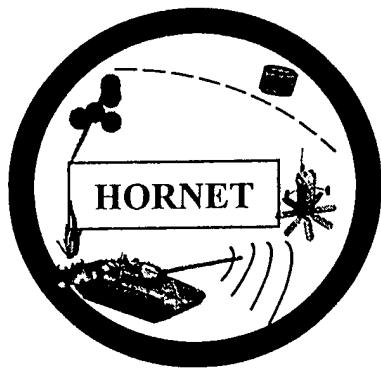
3-5 Km (LOS)
via SINGARS

ADDS:

- On-Off-On
- Status Verification and Track Data
- Target Prioritization
- Coordinated Attack Schemes
- Redeployability Prior to Arm
- GPS Location
- Performance Improvements for Expanded Target Set and Off-Nominal Environments

In Engineering & Manufacturing Development
(TC GFY 00)





HORNET VERSION

BASIC HORNET

HORNET UTILITY IMPROVES AS SYSTEM EVOLVES

OPERATIONAL UTILITY

Enhances Defensive Operations

- Overwatch of Static Obstacles
- Approach Route Interdiction
- Area Denial
- Economy of Force

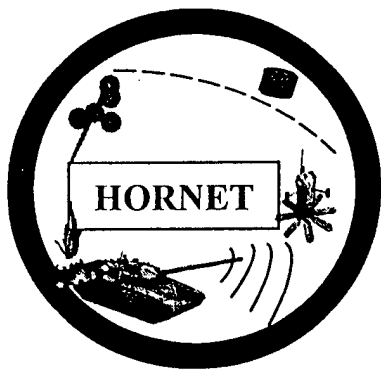
IMPROVED HORNET

Enhances Defensive and Offensive Operations

Above Plus:

- Flank Protection
- Counter - Counterattack
- Economy of Force

FUTURE HORNET



FUTURE HORNET - TECHNOLOGICAL ENABLERS

SUBSYSTEM

- Munition Sensor Fuzed Warhead
- Munition Ground Platform

TECHNOLOGIES

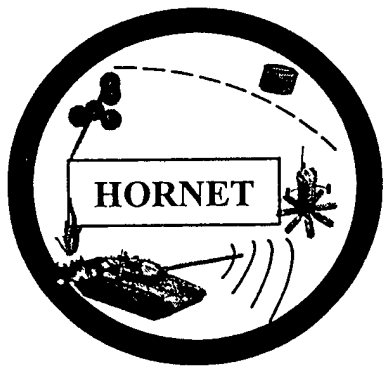
- Multi-Sensor Fusion
- Multi-Mission Warhead
- Multi-Sensor Fusion and Multi-node Data Fusion (Munition-to-Munition)
- Increased Munition Footprint / Reach

PAYOFF

- Detectability of Low Contrast Targets
- Counter-measure Immunity
- Lethality Against Soft Targets
- Munition Effectiveness
- Improves Effectiveness of Field
 - More Sophisticated Coordinated Attack Capability
- Improve Accuracy of Targeting Data
- Munition Effectiveness

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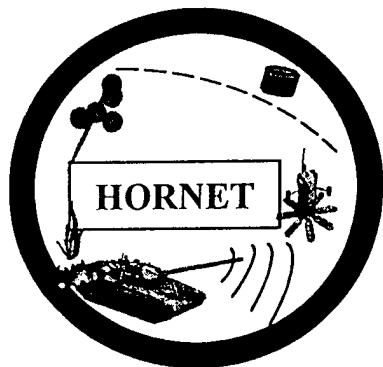
TEXTRON Systems



SYSTEM LEVEL MODIFICATIONS NEEDED TO EXPAND FUTURE HORNET UTILITY TO DEEP MISSIONS

- **Long Haul Communications Challenges**
 - Defining Requirements
 - Best Technical Approach
 - Integration Into Upper Echelon of Army's C⁴I Architecture
- **Synchronization Across Combat Arms**
 - Timelines for Cueing and Targeting of Indirect Fire
 - Integration With Maneuver Commander Concepts of Operation
- **Remote Delivery / Deployment**

– Helicopter	- UAV
– MLRS	- TMD
– ATACMS	- Tomahawk
– Powered GPADS-L Parafoil	- Other



HORNET UTILITY IMPROVES AS THE SYSTEM EVOLVES

HORNET VERSION

**BASIC
HORNET**

**OPERATIONAL
UTILITY**

**Enhances
Defensive
Operations**

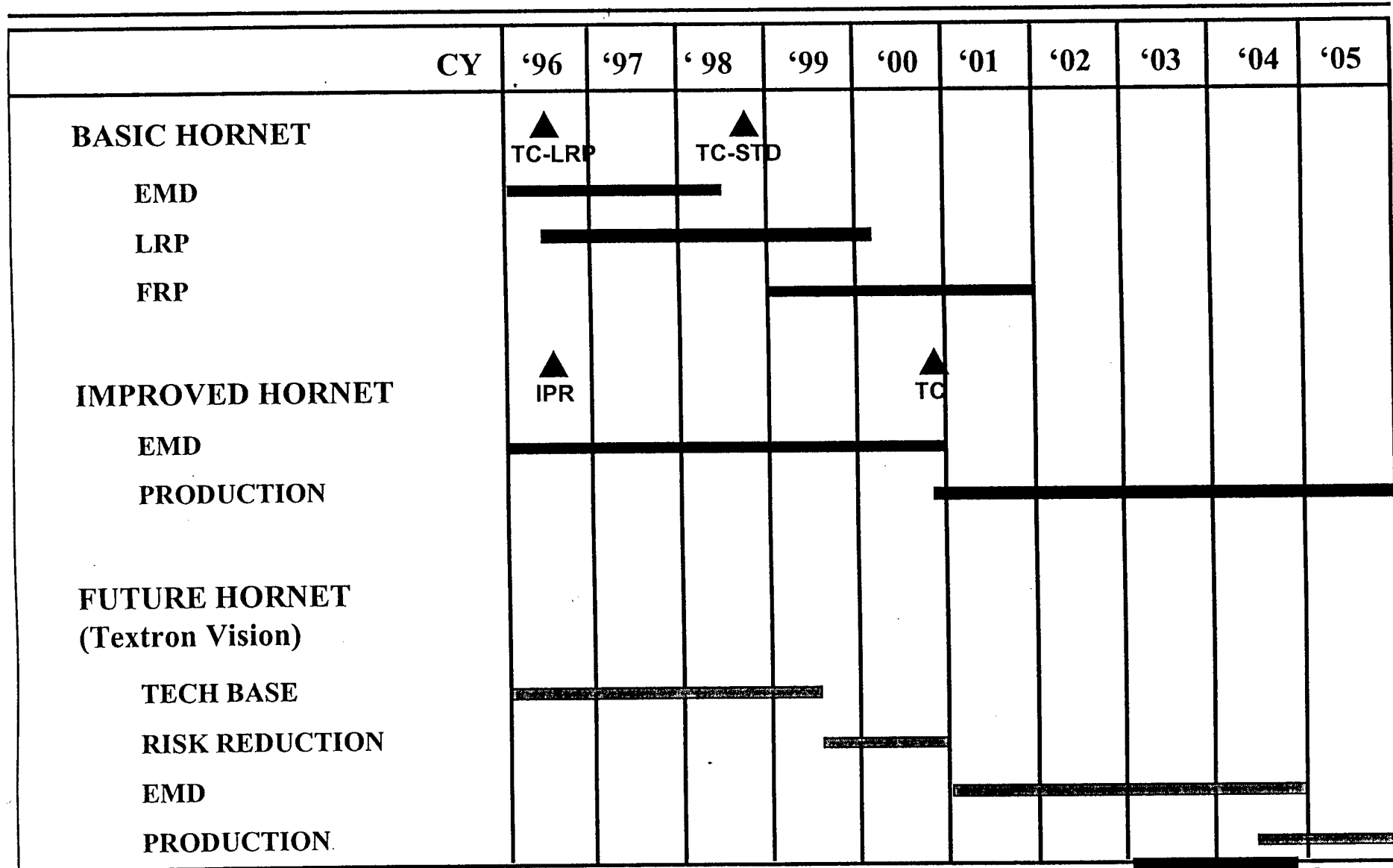
**IMPROVED
HORNET**

**Enhances
Defensive and
Offensive
Operations**

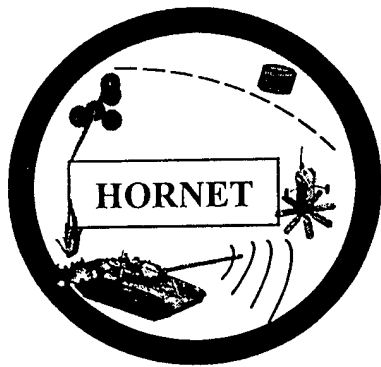
**FUTURE
HORNET**

**Enhances
Combined Arms
Operations**

HORNET EVOLUTION IS SYNCHRONIZED WITH ARMY XXI TIMELINE



TEXTRON Systems

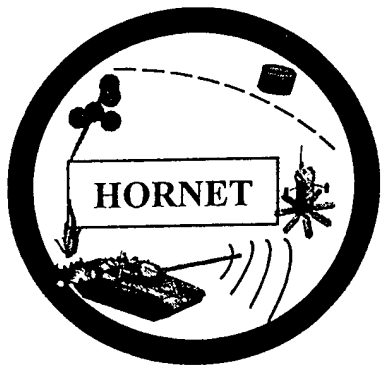


Emerging Army Operational Concept

- **Focusing with Intelligence**
- **Killing with Fires**
- **Finishing with Maneuver**

From TRAC-FLVN (draft) post-exercise assessment of
Division Advanced Warfighting Experiment (DAWE),
4th Infantry Division, November 1997

Two out of Three for Hornet . . . Not bad!



AAN FIRES "DESIGN PRINCIPLES" ARE BEING FACTORED INTO HORNET'S EVOLUTION

- Minimum Logistic Burden
- Maximum Range
- Minimum Response Time
- Precision Engagement
- Multi-functional Platforms and Munitions
- Mix of Organic and Reach-out Assets
- Full Spectrum of Effects (Lethal to Non-lethal)
- Minimum Collateral Damage
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Enabling Global Early Entry Operations
- Meet Unique Needs of Vertical Battlespace and
Ingress / Egress Routes
- Supports Operations in Complex Terrain

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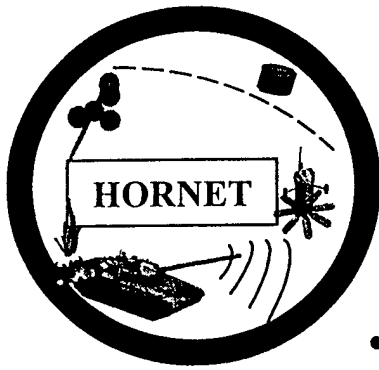
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✓



HORNET

- **Basic Hornet Delivers A Needed Warfighting Capability Today**
- **Improved Hornet Will Give Substantial Increase To The Offensive And Defensive Utility of Hornet by the Year 2001**
- **The Technologies Exist (Many Have Been Demonstrated) For Further Expanded Utility of Hornet**

**Textron Is Ready To Support The Army
With Its Integration Of Hornet Into Army XXI
and Beyond**